should be careful that the environment created by its final local competition rules emulates the "efficient competition scenario" and not the "biased competition scenario" suggested by some provisions in the NPRM.

B. COMPETITIVE CONDITIONS IN LOCAL EXCHANGE SERVICES

1. Relevance of Competitive Conditions to Interconnection and Competition Policies

The development of entry-facilitating policies should focus solely on the asymmetries in public policies and differences in market power between competitors that impede fair competition and be based on sound economic principles of costs and pricing. To the extent that the adopted policies are not based solely on economic principles, but rather are intended to shape market structure by distorting prices or incentives to unduly favor entry or resale, such policies are likely to bias competitive outcomes and favor some competitors at the expense of others. Thus, in deciding rules for interconnection, the Commission should be concerned only with those advantages and disadvantages that stem from noncompetitive sources, such as essential facilities. While LECs have advantages stemming from their ownership of ubiquitous local exchange facilities, they also have substantial disadvantages: they are encumbered with the costs of their carrier-of-last-resort and ready to serve obligations; they are required to price some services well below cost (e.g., residential basic exchange service) and other services well above costs; they are prevented from changing their prices quickly to meet market conditions and respond to competitors; and they cannot offer one-stop shopping to customers because of the continuing restriction on in-region interLATA services.

While the Commission should not adopt policies that are intended to neutralize natural competitive advantages, and should certainly not design its rules to favor certain competitors, it should be careful of how its policies may lead to unintended effects given the advantages and disadvantages of the likely competitors. As we will show in section D, some policies intended to promote resale competition in the local exchange market would also have the unintended effect of magnifying the rather substantial competitive advantages that AT&T and other IXCs already

have, compared to LECs and other facilities-based competitors. The Commission can best avoid such harmful unintended effects by understanding current competitive conditions in local exchange service markets, how competitors have and will enter the markets, and how competition will develop differently in local exchange services than it did in long distance services.

2. Current Conditions in Local Exchange Services

Unless state regulatory policies and rate structures are dramatically changed, most of the potential benefits of competition will accrue to the high-usage customers who will be targeted by new entrants, at the expense of the majority of residential customers who generate low revenue or no revenue at all, and will therefore be neglected by new entrants. To see why this is so, compare some basic conditions characterizing competitive markets to the current conditions in local exchange services:

First, in competitive markets, no incumbent firm, however large its market share, is required to provide services to customers at prices <u>below</u> competitive levels, as are incumbent LECs. The policy of subsidizing certain classes of services will distort the entry strategies, product positioning, marketing decisions and investment behavior of new entrants, some of whom will attempt to avoid serving such customers, or serve them only if subsidized by the incumbent (e.g., by purchasing unbundled network components at prices below full cost).

Second, in competitive markets, no incumbent is required to charge prices <u>above</u> a competitive level as a means of cross-subsidizing customers or services that are priced below competitive levels. The policy of requiring some LEC customers and/or services to cross-subsidize others amounts to a tax on those customers and/or services providing the subsidy. This implicit tax distorts the competitive process because, by purchasing services from a new entrant who is not required to cross-subsidize, the customer can avoid the tax in the LEC's prices.

Third, in competitive markets, no incumbent firm is required to charge the same price across all customers in a geographic area when there are substantial differences in the cost of providing services across that area. The policy of statewide price averaging of local exchange service will distort entry and competition by providing targets of opportunity for entrants, based not on the economics of supply and demand, but on regulatory arbitrage.[1]

Fourth, in competitive markets, no incumbent firm is subjected to extensive regulation of prices and service offerings while its competitors are free of most such regulations. The asymmetric regulation of LECs and new entrants on both the state and federal level would distort competition and handicap LECs by inhibiting them from pricing to market conditions, offering new services expeditiously or responding to competitors' initiatives.

Fifth, in competitive markets, no incumbent firm is required to unbundle its products or services and sell them to its competitors, except in the extremely rare circumstance where a competitor can prove that a service is an "essential facility," i.e., the sale of that service by a monopoly provider to its competitors is essential for competition. Note that in competitive markets, public policies do not require unbundling by an incumbent even one with a very high market share merely because its competitors request such unbundling.

Sixth, in competitive markets, no incumbent firm is required to provide service in areas or to customers simply because no other competitor is willing to provide service there. "Carrier-of-last-resort" and "ready to serve" obligations distort competition because they impose the costs of those obligations on incumbents, while others are allowed to avoid them by serving only those customers they choose to serve, when they want to serve them. Worse, if entrants are impose with a nominal obligation to serve, they may meet that obligation by purchasing service at wholesale rates from the LEC. These ready-to-serve and carrier-of-last-resort obligations, combined with the unbundling requirements of the Telecommunications Act, impose substantial new business risks on U S WEST.

In sum, there are fundamental differences between the competitive conditions enumerated in economics textbooks and those prevailing in local exchange services markets today. Unless and until these differences are moderated by regulatory reform, many consumers of local exchange services will not realize the benefits of competition.

3. Competitive Entry into Local Exchange Services

There are three main forms of entry into local exchange services: facilities-based (i.e., the entrant invests substantially in its own network); partial facilities-based (the entrant invests in its own network but also rents the use of unbundled network facilities from facilities-based carriers); and resale (the entrant resells services purchased from a facilities-based carrier). While policies that enable entrants to rent unbundled network facilities or resell the services of facilities-based carriers can promote competition, such policies can also inhibit the development of facilities-

[1] Regulatory arbitrage involves exploiting regulated rates or other regulations for private gain (e.g., buying services that were intended for one type of usage and using them for another, thereby avoiding a higher regulated charge, or targeting geographic areas whose prices are held substantially above cost by regulations requiring geographic price averaging.)

based competition by distorting entrants' "make or buy" decisions. If the prices of unbundled network elements or the wholesale prices of services are set too low, the incentive to invest in facilities will be reduced or even eliminated. Moreover, policies that are biased toward excessive unbundling or resale will make it difficult for facilities-based competitors to succeed, even assuming they invest in the nation's infrastructure. For example, U S WEST Media Group intends to spend millions of dollars to upgrade the facilities of its cable subsidiary in Atlanta in order to provide telecommunications services to residential customers in competition with BellSouth. How can U S WEST Media Group possibly compete if AT&T is allowed to purchase and resell BellSouth's local exchange services at prices that do not even cover costs?

Moreover, unless this Commission exercises national leadership and extreme care, the pervasive effects of state franchise regulation of local exchange carriers, and the substantial cross-subsidy flows across customers, services, and geographic areas will induce imbalanced competition and heighten cream-skimming in local exchange services. By "imbalanced competition" we refer to the situation in which one competitor is regulated by different standards than others. For example, U S WEST is heavily regulated, while new entrants are not. New entrants would have far greater flexibility in setting prices, offering new services, and otherwise meeting customers' demands. "Cream-skimming" refers to the selective entry and targeted marketing efforts of some competitors seeking to serve high-profit customers and services, while relying on U S WEST to provide the ubiquitous service needed to capture the benefits of an extensive public switched network. Cream-skimming also reduces the economic viability of new entrants that are pursuing a mass market strategy. For example, U S WEST Media Group's cable subsidiary in Atlanta has agreed to serve all the customers who request service in that market, using its ubiquitous cable network in the region. However, this policy is not economically viable if other competitors in that market are able to exploit cream-skimming opportunities.

4. Competitor Analysis

The competitive situation in local exchange markets today is far different than the market for interexchange services following divestiture. When long distance service was deregulated, entry

came from companies that were essentially *de novo* entrants, with no brand recognition or positive service reputations. In the local exchange market, however, entry will occur from a number of companies that are already large and well-known communications service providers, and for whom entry will be a product line extension rather than a new product introduction. The business strategy and economics literature tells us that product line extension is much easier to accomplish than *de novo* entry.[2] AT&T's entry into the local exchange market, for example, is a natural product line extension of its long-distance and cellular services. taking advantage of its existing customer base. According to recent surveys, AT&T has "a dominant consumer franchise and at least one in ten consumers believes that the telecommunications giant is the provider of their local service now."[3]

In analyzing how various interconnection rules might affect the post-entry market structure in a LEC's region, it is useful to divide the market participants into four groups: the major IXCs (e.g. AT&T, MCI, Sprint); facilities-based competitors (e.g., cable companies, out-of-area LECs, and other facilities-based entrants such as MFS); minor IXCs and other resellers; and the incumbent LECs. These groups are differentiated by their initial market positions with respect to both customers and regional infrastructure, and the extent to which the firms have established customer brand name recognition.[4]

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[2] Most competitors are expected to compete across a range of services and offer packages of services to consumers. In expanding from its current base, diversification into a related market permits a firm to exploit economies of scope. In her seminal work on diversification of firms, Edith Penrose (*The Theory of The Growth of The Firm.* Oxford: Oxford University Press, 1959, p. 117) cites the importance of specific market expertise and established marketing channels for creating what she calls an "inside track" with customers should a firm become interested in supplying other products to the same consumers. Sharon Oster extends this line of thought by cataloging some of the sources of scope economies that permit leverage into new product lines.(*Modern Competitive Analysis.* New York: Oxford University Press, 1990, p. 184.) These include brand name extension, knowledge about the customers' needs and demand, consumer confidence, established marketing networks, and joint use of physical facilities and a common labor pool. All of these are likely to be operable for incumbent long distance carriers seeking entry into local exchange service markets. Montgomery and Hariharan document empirically the tendency of diversifying firms to enter activities in which the resource requirements are similar to their own resource capabilities. Profit maximizing firms enter lines of business in which they are likely to have the greatest competitive advantage. ("Diversified Expansion by Large Established Firms," *Journal of Economic Behavior and Organization*, Vol. 15, 1991, pp. 71-89).

[3] "Chilton Communications Study on $40 Billion Battle for Local Telephone Service," *Chilton Research Services*, March 15, 1996, p. 2.

[4] There is a critical distinction between the "mass market" (consisting of residential and very small business customers that require approximately 1-3 lines), the middle market (3-12 lines), and the "multiple-line business market" consisting of customers requiring more than 12 lines). The later market is characterized by more sophisticated buyers who are extremely sensitive to the perceived reliability of the services they purchase, whereas the former are less sophisticated buyers that rely heavily on brand-name recognition developed through mass media advertising and historical legacy, when making their

purchase decisions. Our discussion of resale is primarily focused on the mass market. In any event, one should distinguish between entrants who are likely to rely heavily on resale of LEC services (which would be made profitable if prices were set below economic costs) and facilities-based, or partial facilities-based entrants that are likely to use LEC services to fill in missing pieces of their own network.

a. Major IXCs

Major IXCs have many of the same competitive advantages that are ascribed to the LECs, but with fewer strategic constraints. The "big three" facilities-based IXCs (AT&T, MCI, and Sprint) have established reputations, nationally recognized brand names and large customer bases. Many customers already use these entrants for long distance and other services. This implies that the cost to consumers to change from their current local service provider to an IXC provider of local service ("switching costs" in the terminology of economics and strategy) is likely to be very low, since customers are likely to anticipate that these entrants will stay in the market and continue to provide high-quality services.

AT&T already provides inter- and intrastate long distance calling to 80 million US consumers.[5] MCI was already serving 10 million customers as of the beginning of 1993 with its Friends & Family program alone.[6] And Sprint, the smallest of the major IXCs, has a long distance customer base of nearly 8 million.[7] In addition, a recent market survey found that the large long-distance carriers had superior reputations for providing a wide range of telecommunications services compared to the LECs and cable operators. Almost a 30 percent of the residential respondents, and over 40 percent of business users, said they were at least "probably likely" to switch from their local service provider when given the opportunity. In contrast, less than 20 percent of residential users and less than a third of the business users said they would switch from their current long distance service provider to a different IXC in the future.[8]

In competing for local exchange and other telecommunications services, AT&T and other long distance companies can exploit their powerful national brand-name recognition. The IXCs have built this reputation through huge advertising expenditures. For example, AT&T had the number one ranking brand in Advertising Age's "Top 200 mega-brands by 1995 ad spending."

[5] AT&T 1995 Annual Report, p. 10.

[6] MCI 1994 Annual Report, p. 12

[7] Sprint 1995 Annual Report, p. 24.

[8] "Supplement to Telephony: Customer Care Special," *Telephony*, November 6, 1995, p. 7.

MCI ranked 9th in that listing, and Sprint ranked 24th, with a 13 percent increase in advertising spending dollars from 1994 to 1995.[9] AT&T, in fact, has one of the best known brand names in America: when AT&T renamed McCaw cellular service to AT&T Wireless, the number of customers inquiring about the service increased tenfold, from 600 to 6000 per week.[10] In fact,

> "(t)he AT&T moniker is so powerful that consumers believe they have heard of it in places where it does not exist. As an example, consumers, responding to a poll in which they were asked to identify products that stood out, ranked AT&T Cellular at the top of such a list along with Coca-Cola and Pepsi. Interestingly, there was no AT&T Cellular (at the time of this survey)."[11]

Sprint and MCI also have strong brand equity. For example, "Sprint is relying on its brand recognition, existing presence and technical and marketing expertise, a Sprint spokesman said."[12] In recognition of the power of its national brand name, Sprint's local telephone operations have now adopted the Sprint name, and, in promoting the Sprint name as a local brand, Sprint has launched a new local advertising campaign featuring the familiar trademarks and personalities of their national advertising campaigns.[13] Additionally, the first PCS service on the market, in the Washington Metro area, is being marketed under a Sprint brand-name derivative, "Sprint Spectrum."[14]

According to a recent survey in *Telephony* about customer service perceptions of telephone and cable companies, the major IXCs will have very substantial advantages in entering markets for local exchange services:

> "Our research shows that AT&T, MCI and Sprint, far from being vulnerable to an onslaught by the RHCs, are extremely well-positioned to dominate long-distance, local, cable TV and wireless markets in the near future. We found that many U.S. consumers when asked who their local service provider is still answer, 'AT&T.'"[15]

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[9] Craig R. Endicott, "Top 200 Brands," *Advertising Age,* May 6, 1996, p. 34.

[10] "AT&T Eagerly Plots a Strategy to Gobble Local Phone Business," *The Wall Street Journal,* August 21, 1995, p. A1.

[11] Kirchhoff, Herb and Murphy, Madeline, *Inside the Competitive Local Exchange*, Telecom Publishing Group, 1995 p. 202.

[12] *Inside the Competitive Local Exchange*, p. 190.

[13] "Sprint Launches Familiar Weapon in Telecom Brand Battle; Unveils New Image Campaign for Local Division: 'Here's Where it Gets Easier,'" *Business Wire,* May 2, 1996.

[14] Deborah Wayne, "Sprint Spectrum PCS Premiere Garners Early Warm Reception," *Crane Communications, Inc.: Radio Comm. Report,* December 18, 1995.

[15] Steven Titch, "Supplement to Telephony: Customer Care Special, Winner Take All," *Telephony,* November 6, 1995, p. 3.

IXCs also have customer information that allows them to create narrowly targeted product and marketing programs. Knowledge about long-distance usage is valuable for identifying the customers that generate the most revenue and those that are likely to have the highest demand for premium services such as call waiting or voice mail.[16] Entrants without this information will find it more difficult to identify market opportunities, thereby increasing their entry costs relative to the major IXCs.

b. Facilities-Based Competitors

Other potential entrants into local exchange services include incumbent LECs from other service areas, cable companies, companies previously considered competitive access providers (CAPs), and wireless service providers. None of these entrants has the same level of name recognition and reputation within a given local exchange service area as the major IXCs and the incumbent LEC. Many of these companies, however, have some existing infrastructure and, given the right incentives, could enter the market with improved technology. "CAPs", such as MFS, TCG, Phoenix Fiber Link and Electric Light Wave are entering the highest density geographic areas. These facilities-based entrants will focus mostly on business customers. MFS, for example, currently has networks in 45 US cities and plans to increase this number to approximately 85 in the next 3 years.[17] Cable companies can upgrade existing coaxial distribution plant to offer interactive voice, data and video services. With continuing technological innovation and associated cost declines, PCS and stationary wireless will soon become competitive with wireline local exchange services.

c. Minor IXCs and Other Resellers

At least some of the existing long distance resellers will presumably expand into local exchange services in order to provide one-stop shopping to customers. Newly formed resellers

[16] As the Commission is well aware, these enhanced services or vertical functions have high margins which cross-subsidize below cost basic residential local exchange service in many state jurisdictions.

[17] "MFS Announces New Initiatives," *PR Newswire*, May 7, 1996.

may also enter the market, so long as they have some reasonable chance of success. Since few resellers have any brand recognition and typically cannot afford intensive advertising, policies that favor brand name resellers such as AT&T will make it more difficult for non-brand resellers to survive, much less thrive.

d. Incumbent LECs

Many new entrants have a key strategic advantage over incumbent LECs because rather than serve all customers on a non-discriminatory basis they choose which customers to target and which not to serve, whereas the LECs are required by state and federal regulations to offer ubiquitous below-cost basic service at geographically averaged rates on a ready-to-serve basis. Not only are the LECs restricted in their pricing and marketing strategies, they are also encumbered by rules preventing them from offering a full range of telecommunications products (e.g., in region interLATA service). The ability to offer a full range of products enables a firm to offer one-stop shopping to customers, which appears to be a key driver of customer choice in the future.[18] The ability of an incumbent LEC to move quickly into new service regions and to expand into services it does not currently provide (e.g., long distance, cellular) depends on both specific regulatory policies restricting entry and the LEC's financial situation which, in turn, will be affected substantially by other regulatory rules governing, for example, interconnection, access, universal service and the retail prices of basic exchange services.

C. INTERCONNECTION AND LOCAL COMPETITION POLICY ISSUES

1. Call Termination and Interconnection

To illustrate the difference between "call termination" and "interconnection," suppose there are two carriers, red and blue, serving an area, both of which have extensive networks, with local loops reaching every customer's premise. Imagine that John, served by the red carrier, and Sally,

[18] Evidence of this market trend comes from the big three IXCs who are moving toward the one-stop shopping or integrated service concepts by offering a wide range of communications services with bundled service discounts. See section D.

served by the blue carrier, want to be able to call each other. In that situation, the red carrier has a bottleneck to John, and the blue carrier has a bottleneck to Sally. Note that the bottlenecks exist even though the red network extends to Sally and the blue network extends to John, so long as John and Sally subscribe to only one of the carriers, red or blue. Thus, the bottleneck exists even when each competitors' network reaches every customer's premise. Clearly, the "bottleneck" in local exchange services results not from there being a monopoly supplier of local exchange services in the area, but from the fact that each telephone number is served, at any given time, by the end-office switch of only one carrier.

Because of the call termination bottleneck, John and Sally would have to subscribe to the same carrier of local exchange service to be able to call each other. In the n-tuple case of many customers, each customer would have to subscribe to both the blue and red carriers to be assured of having access to all other customers in the area. The bottleneck applies without limit: if there are "m" carriers in an area, each with networks extending to all "n" customers in the area, each customer would have to simultaneously subscribe to all "m" carriers to be able to be ensured of access to all other customers. The only policy necessary to eliminate this "bottleneck" problem is to require all providers of local exchange service to provide non-discriminatory call termination services for calls originating on competing networks. Because the bottleneck exists no matter how many carriers provide local exchange services, all exchange carriers – not just incumbent LECs must practice open access and non-discriminatory call termination policies.

Interconnection, however, may also require the use of a number of other facilities and services. An interconnecting carrier may, for example, choose to buy tandem switching and/or transport services from the incumbent LEC, in order to deliver traffic to the serving end-office of the LEC for call termination. These services are NOT essential facilities, though, because entrants can either economically buy these services from other service providers or construct their own facilities. Hence, the prices of these services should not be separately or specially established by Federal or state regulations for interconnecting local exchange carriers, even though they may be used for interconnection. Rather, these prices should be determined by

transactions in the market place. If an interconnecting carrier chooses to buy DS-1 or DS-3 circuits from a LEC in order to deliver traffic to the LEC's end-office, that carrier should pay the going market price for those circuits.

In addition to call termination, the Telecommunications Act requires the "unbundling" of the local exchange carrier's facilities.[19] There is no valid economic basis for mandatory unbundling, though, just because a competitor requests the unbundled service. Indeed, there are important economic reasons for not requiring unbundling simply for the sake of unbundling. If market participants are forced to unbundle all the facilities or services they provide to end-users (whether they are essential facilities or not) and sell them to competitors, the incentive to develop new technologies or create new services in order to compete more effectively in the marketplace is severely curtailed. Additionally, competitors may attempt to use unbundling strategically to raise incumbent LECs' costs. Clearly, then, a policy of unlimited unbundling, while it may appear to be "procompetitive," can produce serious anticompetitive outcomes. This is especially true if LECs are required to unbundle services involving proprietary technologies. Investment in new technologies depends on the ability of innovators to capture the potential rents from their investment decisions if they succeed, recognizing that some efforts at innovation will fail. If LECs are required to resell what would be considered "proprietary technology" in competitive businesses, LECs will have less incentive to innovate and may instead substitute marketing and brand competition to maintain their market position. Thus, the only interconnection services or unbundled elements which should be regulated by the Commission under the pricing standards of the Telecommunications Act are those services directly associated with call termination.

[19] This section of the report responds to the NPRM's paragraph 77, "Rather than itemize an exhaustive list of network elements, however, some of which competing carriers may not desire, we further tentatively conclude that the Commission should identify a minimum set of network elements that incumbent LECs must unbundle for any requesting telecommunications carrier, and, to the extent necessary, establish additional or different unbundling requirements in the future as services, technology, and the needs of competing carriers evolve. We seek comment on these tentative conclusions."

2. Cost Concepts and Pricing Principles

According to the Telecommunications Act of 1996, prices for unbundled network elements and interconnection services must be "based on the cost... and may include a reasonable profit." As such, these prices should reflect the total service long run incremental cost (TSLRIC), shared and common costs, a reasonable profit, and, during a transition period, embedded costs. [20] Hence, *any costing standards or methodology used to set prices, must, when applied to the entirety of U S WEST's services, give U S WEST an opportunity to recover its total costs.* If U S WEST is required to price unbundled network elements below their respective total cost, it would cause U S WEST to subsidize competitors and would deter other efficient facilities-based carriers from investing in infrastructure.[21]

TSLRIC should be defined as the forward-looking cost avoided (or added) by discontinuing (or offering) an *entire* service or group of services, holding constant the production of all other services produced by the firm. The forward-looking aspect of TSLRIC contains the assumption that the entire service or group of services will be produced with maximum technological efficiency. The "total service" part of TSLRIC refers to the fact that TSLRIC can be calculated for any product sold in a market. In addition to TSLRIC, LECs also have shared costs which are incurred for facilities and resources used in the production of two or more services, and can therefore not be eliminated by the discontinuation of a single service. Examples of shared costs include fiber strands used for transport services, and stand-by modular switching capacity. These *shared* costs are incurred whenever LECs provide services to end-users and should therefore be reflected in retail, wholesale, unbundled network element and call termination prices. Some portion of common costs also need to be recovered. Common costs are incurred through facilities and resources used in the production of all the LECs services.

[20] This paragraph responds to paragraph 126 of the NPRM "we seek comment on precise definitions for the following terms: LRIC, TSLRIC, forward-looking costs, joint costs, common costs, shared costs, and stand-alone costs..."

[21] This argument is fully developed as it applies to wholesale/resale pricing in section C5 below.

Even when they do not have any shared and common costs, firms in competitive industries experiencing rapid technological change do not price their goods and services at TSLRIC. Under standard economic theory, the least efficient, viable producer in an industry would earn zero economic profits. All producers using older technology are, at least in the short-run, forced to either upgrade their plant or exit the market. Conversely, positive economic profits are earned by the most efficient and innovative firms in a competitive market. Therefore, what often occurs in competitive industries is that a production facility makes above average profits during its early years of operation, which decline over time until the firm is forced to upgrade or close down the production facility. However, if industry-wide prices were set at TSLRIC, only the most efficient producer using the latest technology would be able to cover its costs and make a profit. All other producers would be driven from the market, leaving insufficient capacity to meet total market demand. Thus, even without shared and common costs, product prices (adjusted for quality) of firms in competitive industries reflect the incremental cost of the highest cost viable producer who is operating at any given time.

One of the most pernicious costing practices is assigning or allocating the costs of the local loop to the various usage services, to create the appearance that basic exchange rates are not subsidized by usage services. This traditional practice violates the principle of cost causality, raises the prices of usage services, generates cross-subsidies from high-usage customers to low-usage customers, puts LECs in jeopardy of losing the most profitable high usage customers to competitors and is, therefore, not sustainable in a competitive marketplace. The FCC should establish clear costing standards that would preempt states from arbitrarily allocating the costs of basic local exchange service to usage services.

Prices must also be market-based — taking account of the conditions of demand for a particular service — as well as cost-based. This principle implies that as demand conditions change over time due to competition, technological innovation, or changing customer preferences, the markups of prices over TSLRIC should also change. Markup pricing is widely practiced in competitive markets because all firms must price to recover their shared and

common costs, which they do by marking up prices above TSLRIC. The Commission should allow sufficient flexibility in its pricing rules to enable LECs to negotiate the prices of call termination and interconnection services to reflect market conditions and the supply relationship with interconnecting carriers.

U S WEST is required by state regulations to have sufficient capacity to be "ready-to-serve" end-users' demands for local access lines, dialtone and local calling almost instantaneously. These requirements impose substantial costs on U S WEST, which has to build standby capacity and provide expedited provisioning (e.g., overtime pay, inefficient increments of capacity; and repairing/rearranging facilities instead of planned reinforcement). In any other industry, one would find, at least on occasion, that customers have to wait for the product or service they want. In local exchange telephone service, however, regulators have deemed backlogs or back orders unacceptable. Even private PBXs typically tolerate a greater amount of system blocking than allowed by the regulators. Hence, U S WEST must build sufficient capacity in advance of demand to meet the expected – but uncertain – demand for local access lines. The cost of that capacity, given the obligation to be ready-to-serve, is a necessary part of the TSLRIC of providing basic exchange service.

Finally, full economic costs include, during a transition period, recovery of the embedded costs incurred to meet regulatory service obligations. Barring business assessment miscalculations, proper depreciation methodologies should assure that net book values do not exceed replacement costs. Recall that U S WEST is still under rate of return regulation in all 14 states where it operates as an incumbent LEC. Under these rate of return regimes, LECs should not be required to write off their embedded investments in their regulated books. If such a write-off is required, U S WEST will lack the cash flow from their reduced rate bases to continue high levels of investment in the telecommunications infrastructure.

3. Costs of Unbundling and Interconnection

It should also be recognized that there will be significant additional costs of call termination, interconnection, unbundling and wholesaling of local exchange services. These costs include

losses of production economies, less efficient network capacity planning, negative reputation externalities, reduced contracting flexibility and increased transactions costs. As one example of a possible loss in production economies, consider that approximately half of the local calls handled by U S WEST are intraoffice (i.e., the calling and called parties are served by the same end-office). With interconnection and loss of customers to competing carriers, those same calls will require the services of at least two end-offices, and probably tandem switching and transport as well. Similarly, there will be significant costs incurred in unbundling loops, due, for example, to multiplexing requirements at digital switches, loop servicing such as maintenance, repair and diagnostics, and additional record-keeping requirements.

There will also be significant negative effects on LECs' network planning, increasing the amount of capacity U S WEST must provide for a given level of service quality. For example, when U S WEST is handling a call on both ends, they know where calls originate and, therefore, where they are likely to terminate (based on historical traffic patterns, customer types, changing areas of interest, etc.). When calls are received from competitive local exchange carriers (CLECs), U S WEST will not necessarily know where the calls are originating from, so it faces greater network planning uncertainty, which increases the necessity of emergency jobs to meet immediate demands (prevent blocking, outages, etc.). Suboptimal capacity expansion costs more than planned capacity additions; higher uncertainty will also reduce capacity utilization, especially given high service quality standards, thereby increasing costs.

There is also potential for negative effects on service quality, due to increased traffic loads through tandem switches and the uncertainty regarding which end-office will be terminating calls (increasing the likelihood of blocking, even on intracompany calls, especially tandem switched local calls). Further, there may be an inefficiency introduced because the incumbent LEC's reputation may suffer without justification should a CLEC provide poor service. Recent experience suggests that regulators, competitors and the general public will blame incumbent LECs such as U S WEST Communications for any and all service quality problems due to inaccurate demand forecasts, large increases in tandem switched local calls, etc., even when these

problems are caused by CLECs. Collectively, these factors will substantially increase the business risk facing LECs, thereby increasing their costs of capital. Capital markets simply will not bear those higher risks without correspondingly higher expected rewards. Moreover, U S WEST has real limits on its cash flow and access to capital: it cannot be required to fund the investments needed to meet all the demands of CLECs without limit.

Interconnection agreements should be reached through private negotiations because each interconnection arrangement is different and is subject to a myriad of factors affecting costs and support.[22] The flexibility of private contracting (limited only by broad regulatory guidelines to prevent anticompetitive outcomes) will almost surely lead to superior outcomes relative to a system of private negotiations with an intrusive regulatory overlay.

It is also self-evident that, given the myriad of possible differences in the interconnection arrangements and the wide variety of costs associated with different types of interconnection, "bill and keep" is utterly incapable of capturing these cost differences.[23] If the Commission forces any single interconnection pricing scheme that fails to account for the multiplicity of serving arrangements, it will be encouraging interconnecting carriers to shift as many costs as possible onto LECs, and will also deprive CLECs of economic incentives for cost-reducing behavior (e.g., provide more advance notice and more reliable traffic forecasts). It goes without saying that enforced bill and keep denies LECs fair and reasonable compensation for their costs of terminating calls (which on average are likely to be much greater than CLECs' costs of call termination) and providing interconnection, which is directly at odds with the nation's interest in

[22] These factors include the costs of network engineering, construction, maintenance and operations; the costs of designing, developing, and implementing operational support systems; and administrative and billing costs. Interconnection prices should also reflect traffic volumes, the commitment duration, the length of advance notice required for new service provision, the reliability of traffic forecasts, the distribution of traffic, the potential need for network redesign (e.g., due to network customization or non-standardization); and the terms of payment (e.g., advance deposits, trade credit discounts, bonding and payment guarantees).

[23] This section of the report responds to paragraph 243 in the NPRM, "We seek comment on whether section 252(d)(2)(B)(i) authorizes states or the Commission to impose bill and keep arrangements. If it does, we also seek comment on whether we must or should limit the circumstances in which states may adopt bill and keep arrangements."

infrastructure investment.[24] If the Commission or state regulatory agencies ignore the economic inefficiencies associated with bill and keep and imposes it anyway, even as an "interim solution," bill and keep should clearly only apply to call termination, not to other services associated with interconnection such as tandem switching and transport or local transport.

4. Pricing of Unbundled Network Elements

So long as unbundling requirements are not excessive and do not include proprietary services or network elements, the availability of essential unbundled network elements can stimulate competitive entry by increasing the array of possibilities for partial facilities-based entrants. The key to pro-competitive unbundling is pricing. If unbundled elements are priced below their full economic costs, entrants will arbitrage the pricing structure, buying unbundled elements from the LEC even when they could build their own facilities at a lower cost. Moreover, other facilities-based competitors will be harmed as well. U S WEST Media Group needs to spends billions of dollars to upgrade its cable facilities. If the Group is forced to compete with partial facilities-based carriers who can buy loops at below-cost prices, it will be difficult to justify those investments or succeed competitively if it does make them. Thus, the under-pricing of unbundled elements not only harms the incumbent LEC, who is thereby forced to subsidize its competitors, it also reduces incentives for investment by other facilities-based carriers.

The basic economic principle of "cost causality" also requires that costs should be allocated to and recovered from the service or customer which caused them. Under this principle, those CLECs who purchase unbundled network elements should pay prices that cover all of the costs associated with the unbundled network elements they buy, including the costs caused by unbundling services and/or facilities that incumbent LECs now provision in an integrated

[24] Voluntary bill and keep, as part of an interconnection agreement negotiated by two private parties is fundamentally different, because the parties would presumably have considered that provision as just one of the many "gives and takes" of the agreement.

fashion. Otherwise, entrants such as AT&T and their customers would have their costs subsidized by the end-user customers of U S WEST.

5. Wholesale Pricing of Local Exchange Service for Resale

If priced appropriately, resale can facilitate competition in three main ways. First, resale of local exchange service will allow competitors to offer customers a "full package" of telecommunications services, reducing transactions costs and increasing convenience for some customers. Second, wholesale pricing of local exchange service may attract entry by firms that add value to local exchange service and/or are very efficient at retailing local exchange service. Third, local exchange service resale can reduce the costs and risks of facilities-based entry and expansion in local exchange service for new entrants by allowing companies to develop a customer base before constructing facilities in a given area. However, as mentioned above, much of this risk is shifted onto incumbent LECs such as U S WEST. None of these benefits require, though, that the wholesale price of local exchange service be set below cost or at an arbitrarily low level in the name of promoting competition in local exchange service.

LECs should not be forced to price residential local exchange service below full economic costs or give arbitrary and uneconomically large wholesale discounts to resellers of local exchange service. Incumbent LECs will have no incentive to invest in the public network if prices for wholesale services, network elements and interconnection do not recover their full costs. Pricing wholesale local exchange services *above cost,* and at a LEC's economically rational retail rate *minus the actual avoided cost*, will ensure that resale competitors will compete with the LEC on their ability to sell retail telecommunications services efficiently and ensures that neither the reseller nor the LEC will gain an artificial price advantage under a regulatory-imposed price umbrella.

Before U S WEST starts wholesaling residential exchange services, therefore, it should be allowed to rebalance its prices to avoid selling services below their full economic costs. Requiring U S WEST to wholesale local exchange services to resellers below cost would force U S WEST to subsidize competitors such as AT&T with revenues from U S WEST's end-user

customers, causing severe financial distress to U S WEST. LEC retail prices must be rebalanced because, as new competitors gain market share in intraLATA toll, access, and business services, the subsidies that support below-cost pricing for basic residential exchange service will disappear.[25] Not only will U S WEST lose subsidizing customers to competitors, but U S WEST will be forced to lower its prices for competitive services to its remaining customers to salvage market share, recover its investment in providing these services, and discourage uneconomic entry by less efficient competitors. Thus, subsidy flows from high margin services and customers can simply not be sustained in a competitive communications marketplace.

In competitive markets, wholesale discounts are based on the full retail rate, not other discounted or "sale" rates.[26] AT&T, for example, does not wholesale its long-distance services to resellers at discounts off the prices that large customers pay, but at those prices (assuming the reseller can meet the myriad of term, volume and other contract commitments and restrictions). The avoided cost wholesale discount should likewise be applied to the full retail rate U S WEST charges. It should not, for example, be applied to limited duration promotional offerings or any special contract rates that U S WEST negotiates for high volume end-users. These contract rates, which contain term and volume commitments, are a type of wholesale rate themselves, and it would therefore be economically inappropriate to apply an avoided cost discount to these rates for determining wholesale prices for resellers.

Finally, wholesale prices should also reflect the fact that, in competitive wholesale markets, wholesale suppliers negotiate *term and volume* discounts that are related to the *commitments* offered by the purchaser.[27] The conditions of the sale can then be mutually beneficial and cost-

[25] This discussion of the need to rebalance local exchange rates relates to paragraphs 187 and 188 in the NPRM, "One action a state could take to address any problems...when retail rates are below costs [would be to restructure] rates so that retail rates in each access area are, on average above TSLRIC." And, "We further note that at least one incumbent LEC has suggested in another proceeding that the Commission consider commencing a proceeding to determine whether it would be appropriate to enter a preemption order requiring that rates for local service exceed the cost of providing that service."

[26] The paragraph responds to the NPRM paragraph 175, "We also seek comment on whether, and if so how, the resale obligation under section 251(c)(4) extends to an incumbent LEC's discounted and promotional offerings. Did Congress intend for such offerings to be provided at wholesale rates, based on the promotional rate minus avoided costs, or does the obligation to provide for resale at wholesale rates only apply to the incumbent LEC's standard retail offerings?"

[27] The next few paragraphs in this report respond to paragraph 175 and 179 of the NPRM, "'We seek comment generally about the meaning of the term 'wholesale rates' in section 251 (c) (4)."

effective. It should be noted, though, that U S WEST's carrier-of-last-resort obligations will cause a fundamental problem with mandatory resale. Resellers have an incentive to use this obligation to force U S WEST to build out facilities which could become stranded as soon as the reseller, or another carrier, is able to provide duplicate facilities to the customer. For this reason, LECs should not be required to build *new* facilities for unbundled network elements or for resale without privately negotiated contracts containing term commitments and termination penalties. Additionally, if facilities built for end-users under carrier-of-last-resort rules are subsequently stranded, the carrier-of-last-resort should be allowed to recover the cost of the investment through a competitively neutral mechanism.

If the Commission requires U S WEST to wholesale its services at below cost rates or applies an arbitrarily large estimate of avoided costs, such as the 35 percent discount off retail rates recommended by AT&T in some state proceedings[28], the Commission would distort the "make or buy" decisions of new entrants in the local exchange market. Congress and regulators have expressed a strong belief that facilities-based competition ultimately provides the most effective constraint on the market power of incumbent telecommunications firms. However, building out facilities is more expensive and more risky than merely reselling the facilities of other companies. If the Commission requires U S WEST to wholesale local exchange services below cost, or provides an arbitrarily high avoided cost discount for wholesale services, new entrants who would have built their own facilities (including cable companies and wireless service providers) will choose the lower cost option of reselling U S WEST's facilities, slowing the advent of facilities-based competition, even in market segments which are most likely to be immediately contestable by another facilities-based carrier.

6. The Commission Should Minimize Opportunities for Regulatory Arbitrage

[28] For example in Utah, AT&T witness Howard Bell called for a 35% discount off retail rates for wholesale service. (See Utah Docket No. 95-2206-01, Direct Testimony of Howard Bell, March 14, 1996, p. 21.)

An inappropriate implementation of the Telecommunications Act of 1996 would lead to numerous instances of destructive regulatory arbitrage.[29] For example, in the absence of substantial retail rate rebalancing, competitors should be prohibited from providing service to a single end-user customer by "mixing and matching" resale with unbundled network elements such as vertical calling features. Otherwise, a reseller such as AT&T might be able to purchase basic exchange or dialtone service at the wholesale avoided cost discount (which is currently below cost) and combine this with vertical calling features priced near TSLRIC (but well below the incumbent LEC's retail rate). This arbitrage strategy would harm the LEC by undermining the pricing structure of vertical calling features and basic residential exchange service. If U S WEST responded to this arbitrage by reducing rates on vertical features, it would reduce the size of the subsidy to basic exchange service. In any case, the subsidy would be eliminated either through the loss of high margin customers or through competitively necessary rate reductions on high margin vertical features.

Similarly, so long as disparities between business and residential service prices are maintained for cross-subsidizing residential service, resellers should not be allowed to resell residential basic exchange service to business customers. In the long run it will be very difficult to sustain pricing differences between business and residential services which are essentially identical. [30]

A final example of regulatory arbitrage would occur if IXCs were allowed to bypass federally tariffed interstate switched access rates either through explicitly purchasing switched access as an unbundled network element at rates based on TSLRIC, or by routing interLATA call through a competing facilities-based local exchange carrier who terminates calls on the incumbent LEC's network through "interconnection" rates based on TSLRIC. [31] The general

[29] This paragraph responds to paragraph 184 of the NPRM, "We seek comment on the rates for unbundled network elements and rates for wholesale or retail service offerings." and generally to paragraphs 186 and 187.

[30] "This paragraph refers to paragraphs 176 and 177 of the NPRM "The provision suggests that Congress did not intend to allow competing telecommunications carriers to purchase a service that, pursuant to state or federal policy, is offered at subsidized prices to a specified category of subscribers (e.g., residential subscribers), and then resell such service to customers that are not eligible for such subsidized service (e.g., business subscribers)...We seek comment on this analysis."

[31] This paragraph responds to paragraphs 164 and 165, among other in the NPRM.

principle here is that it will be impossible to sustain non-cost based pricing differentials between access charges and local interconnection rates which are, economically and technologically, identical. The Commission should immediately move to reform IXC access rates, by converting the usage-based CCL and RIC, into a flat rate recovery mechanism.

D. EFFECTS OF INTERCONNECTION RULES ON MARKET STRUCTURE AND COMPETITIVE DYNAMICS

1. Competitive Strategy and Competitive Advantage

The interplay of business strategies designed to maximize long-run profit will often result in an industry innovation path significantly different from the innovation path that would be most socially beneficial. While technological opportunities are critical, so too are competitor strategies, core competencies, and existing business assets such as brand or user base. If it is more profitable to maintain or build market share through marketing strategies rather than through investment in technology, investments in new technology will be deferred, perhaps permanently.

Many business strategies are designed to reduce the vigor of price competition. Principal ways of reducing direct head-to-head competition include creating product differentiation, increasing customer switching costs and building barriers to entry.[32] Further, when competing in an emerging market, or when public policies have radically changed the rules of the game, firms try to shape the competitive battleground to favor their particular assets. This "market shaping" can occur through foreclosure of competition by acquisition of key business and technological assets, marketing competition, and adoption of governmentally imposed restrictions on the market.[33]

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[32] "Differentiation provides insulation against competitive rivalry because of brand loyalty by customers and resulting lower sensitivity to price...The resulting customer loyalty and the need for a competitor to overcome uniqueness provide entry barriers." Michael Porter, Competitive Strategy, 1980, p. 36.

[33] For example, AT&T has strived to protect itself from RBOC competition in interLATA services and equipment manufacturing by arguing against removal of the MFJ line-of-business restrictions. See Blau and Harris, "Strategic Uses of Regulation: The Case of Line-of-Business Restrictions in the U.S. Communications Industry," *Markets, Politics, and Social Performance*, Vol. 13, 1992, p. 161-189.

The various rules being considered by the Commission have quite different implications for middle-to-long run market structure and the magnitude and types of investments in technology and infrastructure. As the rules vary, so too will the choices of competitive strategies and the relative advantages that different types of entrants will bring to the competition. With these different outcomes in mind, we now contrast the effects of two very different "stylized" regulatory policy scenarios on competition in local exchange services. We recognize that it is not possible to predict, with accuracy, the development of market structure or the dynamics of competition. However, we do believe that it is possible to identify the "central tendencies" of alternative regulatory regimes, and that a comparison of probable outcomes is valuable information for analyzing the alternative policies.

In the "biased competition scenario," we assume that the LECs' retail prices are not restructured; wholesale prices are set below the cost of local exchange service (because they are established by discounts off of below-cost retail prices); excessive unbundling is required, with inadequate compensation to LECs for the cost of unbundling; and/or unbundled network elements are priced at or below incremental cost (e.g., by requiring "bill and keep"). In the "efficient competition scenario" we assume instead that economically rational retail pricing of local exchange services will be rapidly adopted through rate rebalancing; and that prices of call termination, unbundled network elements and wholesale local exchange service cover full economic costs, reflect variations in costs, and enable LECs to earn a reasonable profit.

2. Biased Competition Scenario

The dynamic effects of pricing wholesale local services below cost on long-term local exchange market structure are likely to be significant. Consider competition between facilities-based competitors and competitors that are providing service by reselling LEC services. Suppose that the economic cost of providing competing facilities-based local exchange service is slightly less than the economic cost of providing that same service through the LEC's system. In such a case, new networks should be competitively viable. Yet, if the price of local exchange service is held below its full economic cost by a combination of federal and state regulatory policies, then

resellers would be able to compete with facilities-based competitors by reselling the LEC's services at below cost prices, which may also be below the costs of new facilities-based competitors. Such pricing will either drive the facilities-based new entrant out of the market or will prevent entry in the first place.

This outcome is economically inefficient; indeed, it is directly analogous to the anticompetitive practice of predatory pricing, with some interesting and telling twists. Legal concerns aside, the economic decision to predate turns on whether there is an incentive for an alleged predator to price below cost, i.e., whether that predator can recoup its losses after the victims are either discouraged from competing vigorously or driven out of the market. With below-cost wholesale prices, a local exchange service reseller would clearly have an incentive to predate because the LEC, not the reseller, would suffer the losses from predation.

Thus, if LEC local exchange services are underpriced, there will be a powerful incentive for entrants to adopt strategies that depend heavily on reselling services rather than on investing in new infrastructure. Reselling also allows near-immediate and large-scale entry that will be pushed by marketing strategies emphasizing the entrant's price, bundled services, brand, and reputation. This reselling strategy should be particularly attractive to major IXCs with existing brand and reputation assets that can be leveraged into the new market. With below cost wholesale pricing of LECs local exchange services, AT&T and other major IXCs will have strong incentives to enter the residential and small business market, at least initially, as resellers, even if they eventually create their own facilities-based networks.

Such a strategy will entail further investments in brand (keeping AT&T at the top of the ad charts), thereby increasing the barriers to entry to the mass market for nonbranded service providers. This strategy is not new to AT&T, of course: it was and continues to be a key element in their battle to maintain their market share and high profit margins in interexchange services.

Another important element in AT&T's and other major IXCs' entry strategies is likely to be the development and marketing of bundled and then functionally integrated service offerings of